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WWII Ordnance Still Haunts Europe and the Asia-Pacific Rim

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Explosives and mines from WWI and WWII still turn up on European and Asian construction sites, backyard gardens, beaches, wildlife preserves and former military training ground. For most countries, these discoveries are not isolated incidents but are the result of hastily cleared ammunition dumps, training ground, bombings and mine fields from these wars. In the United Kingdom, over 20 percent of the entire landmass has, at one time, been used for military training. This military training has resulted in uncovered ordnance that dates from cannon and musket balls to modern weapons. Many of the older U.K. ranges can contain an entire historic sampling of ordnance. Clearance of these areas is a priority because it is being returned to private ownership and must be confirmed "free of ordnance" under current laws.

In Belgium and neighboring countries, 80 years after WWI, the Bomb Disposal Unit (BDU) of the Belgium Armed Forces finds about 10 WWI UXO every day. Bombs Away, a private hazardous material firm specializing in UXO removal in the Asia-Pacific Rim, unearths WWII UXO daily. According to Manfred Schubert, chief of Hamburg, Germany's UXO department, Germany has enough UXO littering its landscape to keep the department busy into the 21st Century. This UXO includes hand grenades to 500 pound chemical long delay bombs. Even after the guns of these wars have fallen silent and hobbyists and antique dealers trade on their history,

Country	Chemical Ordnance		Non-Chemical Ordnance		Total	
	Number (Thousands)	%	Number (Thousands)	%	Number (Thousands)	%
Germany	33	6.4	485	93.6	518	35.6
France	16	4.6	334	95.4	350	24.1
UK	4	2.2	178	97.8	182	12.5
USA	1	12.5	7	87.5	8	0.5
Russia	3	4.2	69	95.8	72	4.9
Austria	5	2.9	170	97.1	175	12.8
Italy	4	2.7	146	97.3	150	10.3
TOTAL	**66**	**4.5**	**1,389**	**95.5**	**1,455**	**100.0**

Chemical and Non-Chemical Ordnance Released by Allied and Axis Countries
Table 1

Due to more than 90 years of live firing at various locations on Dartmoor, explosive ordnance contamination from many countries covers most of the Tors. Due to an accident in June 1995, when two children were seriously injured by a two inch HE mortar, and due to pressure from conservationists to reduce the danger areas so they have more freedom to walk the Tors, 5 Section EOC was to begin the mammoth task of clearing Dartmoor.

Photo c/o Redwing Magazine

battles are still being fought. Ordnance contamination continues to plague these countries.

The high rate of failure among the ammunitions from 60-90 years ago is cited as one of the main reasons for such a high level of contamination. Some specialists estimate 30 percent of ammunitions never exploded. Sgt. Robert Hallam, a bomb disposal officer with the U.K. 33 Engineer Regiment (EOD), feels that so much UXO is being removed from the U.K. because of the high bombardment level during WWII. He said, "You must also take into account the failure rate of this equipment. Nowadays, we expect 10 percent of submunitions will fail and that is with modern technology at work. The armed forces of that era simply did not have as much time to deal with misfires or blinds as they would have liked."

Captain Vincent Muylkens of the BDU of the Belgium Armed Forces (SEDEE-DOVO) feels "about 450 million pieces of explosive ordnance remain. Having 3,500 requests each year, we will stay busy for many years to come." Michel Lambrechts, captain-commandant of the unit commented, "every year we handle approximately 250 tons of ammunition from these wars. Within these 250 tons, some 20 tons are doubtful ammunitions which could be chemical shells from WWI."

Paul Murray, president of Bombs Away said, "the Pacific Rim was the scene of fierce fighting during WWII. Millions of ordnance items with a 25 percent dud rate were extended from the Marshall Islands to Japan. Southeast Asia experienced even more war with ongoing conflict through the '70s. With increased development of the Pacific Rim, these items are unearthed every day in excavation areas throughout the former battle sites." U.S. military EOD teams deal with over 225 emergency UXO calls on Guam per year. Murray feels that even more ordnance is unearthed in excavation sites than are reported. It is then returned to the fill site out of ignorance or complacency. "On Kwajalein, the amount of UXO recovered from excavation sites went up 1,000 percent when those sites were monitored by UXO specialists," he explained.

Saipan, a 46 square mile island near Guam, was the scene of one of the key battles of the pacific war. On June 15, 1944, U.S. forces staged amphibious landings along its coast against well-established Japanese defenses. By the time the battle officially ended on July 9, 1944, approximately 30,000 Japanese soldiers and civilians had been killed, including over 4,000 who died in the battle's single largest Banzi charge. The United States suffered 16,525 casualties and 3,426 deaths. Saipan was also infamous for the mass suicide of over 10,000 Japanese civilians who threw themselves and their children off Banzi cliff. Today, the small island is still under the curse of the WWII battle. Northern Marianan emergency management officials believe there are still tons of UXO scattered across the small island today. Marpi, most of which is now forested, was the site of the last Japanese stronghold. It is so concentrated with UXOs that efforts to clean up the site have been hampered by the cost of the enormous undertaking. Beach combing a UXO while walking the shoreline is not uncommon. Road and construction projects are often delayed. The government occasionally hires a contractor to deal with the problem, but there is no organized ordnance disposal in current governmental plans. Officials feel the task would be too costly and may take many years. Adding to this dilemma is the bureaucratic red tape for undertaking such a job. The outlook for development in Saipan and the rest of the Northern Marians Islands is not optimistic, as these weapons stay indefinitely volatile.

The History of Clearance-The History of Warfare

The history of clearance and military warfare may be part of the answer as to why so much UXO remains littering these islands and Europe. Clearance of UXO and land mines has dramatically improved over the past 10 years. Previous to humanitarian involvement in demining and UXO removal, various military branches undertook these tasks. Before 1939, little organized clearance was taking place, and any items found were dealt with on an item-by-item basis.

From Caesar's ancient forms of traps and spikes of the caltrops to the fougasse, early attempts at landmines proved unreliable, time consuming and secondary to the main weapons and defense system. The U.S. Civil War precipitated the introduction to pressure operated mines. Brigadier General Gabriel Rains of the Confederate States Army had been experimenting with artillery shells to explode by trip wires or a false step. The use of these explosives began on a limited basis but not without controversy. General William Sherman of the Union Army stated that landmines "were not war, but murder."

During WWI, AP mines were adapted from artillery shells, and the Germans developed the Minenerfer shell fitted with a chemical fuse that detonated the device up to and beyond 48 hours. These UXO are still found today. By WWII, the mine had become effective in military uses and economically efficient by delaying, rechannelling and damaging armor and men while requiring less manpower and material to hold offensive and defensive positions. The effective use of mines during WWII encouraged their continued use and technical development as a standard weapon of war.

Clearing mines and UXO during both World Wars was a monumental undertaking, especially by countries that were devastated financially, economically and politically. The WWI Armistice Agreement of 1918, required the Germans to report their mine field plans and location of delayed action charges. During WWI and WWII, the Germans laid mines in a uniform pattern, and they were marked and recorded. Even so, as in the case of North Africa, only modest efforts were made to remove the mine fields laid by German Field Marshall Rommel.

During WWII, efforts were made to clear some mine fields. The U.S. 20th Engineer Regiment was ordered to clear the Sedjenane Valley in Tunisia. They removed 200,000 mines, but demining was very unpopular. "Virtually everyone objected. Why? The fields had no military value; they were only worked by Arabs. Removing mines was enormously difficult and dangerous, and the mines were in thick brush and scrub that would only be trod on by [civilians] and beasts. Almost everyday there were casualties. Seven officers and nineteen men were killed because someone thought it was a good idea to clear the Sedjenane," reads an account from Mike Croll's *The History of Landmines.*

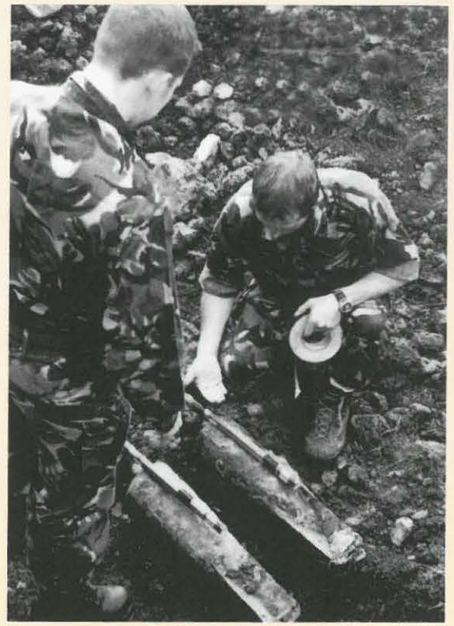
Clearing 20,000 mines in the Formia-Gaeta area north of Napels, Italy, resulted in 15 fatalities and 42 injuries. The French employed up to 49,000 POWs to clear mines throughout Europe and the former Soviet Union. Between eight and 17.5 percent of POW deminers were killed during 1945-1946. "The

POWs were given a strong incentive to ensure that all mines were removed; they were required to march shoulder to shoulder across any area that they cleared," writes Croll. In August 1949, the Geneva Convention eliminated the use of POWs for demining.

The beaches of Great Britain also proved difficult to clear, particularly when dealing with tides and shifting shorelines. Approximately 350,000 mines in 2,000 mine fields needed to be cleared. The last mined beach at Trimmingham was finally opened to the public in 1972. The beach mines proved to be devastating to civilians. One Dorset beach was declared safe and open to the public, but it proved fatal to five schoolboys who played with a mine that they found. There, beach clearance was carried out by the Royal Engineers and Ukrainian prisoners of war. Between 1945 and 1957, 155 deminers were killed and five injured.

Clearance of UXO is still a problem and hampers development in many of the aforementioned areas. Headlines report old bombs turning up on construction sites. Japan's Ground Defense Forces recently defused a bomb that was dug up during construction of a shopping center. In Penang, Indonesia, in 1996, 105 UXO were discovered in various locations. In 1997, a 110lb. shell believed to be from the Battle of Stalingrad was discovered on a Russian soccer field. In Germany, the ordnance department currently has 2,000 workers covering the entire country for UXO because of the frequency at which UXO are still unearthed.

Hamburg was especially devastated during WWII. In one three-day bombardment in July 1943, Allied planes unloaded 8,000 tons of bombs. Hamburg's still pockmarked landscape reveals numerous bomb craters. Specialists watch the rim holes of these bomb craters because a well-trained eye can make out the discoloration that may reveal an unexploded bomb. Schubert, Hamburg's bomb disposal expert stated, "other parts of Germany have bigger headaches than we do." Oranienburg was the site of more than 20,000 dropped bombs as well as booby-trapped bombs with time fuses. Since 1983, three such bombs have self-detonated.



Sgt. Hallam and Spr. Parker, place CLC.
Photo c/o Redwing Magazine

Muylkens reported, "There are ammunitions all over this country, but we don't have any mine fields left. We are dealing with all types-aircraft bomb, artillery shell, mortar bomb, rockets, sea mines, grenades and sometimes chemical weapons. In some countries, these WWI and WWII UXO problems are still an obstacle to development." In Libya, as late as 1980, 37 percent of the agricultural land was still unusable because of mines and ordnance from WWII.

Hallam feels there is so much UXO littering the U.K. because it was "one large training ground. Most of the areas we tend to work in are the more in-hospitable parts of the country. For obvious reasons they were chosen: 'Train hard, fight easy,' and are places like Dartmoor, Yorkshire moors, Wales. Large bombs also appear in London or areas where they were dropped in abundance." The largest problem for U.K. EOC operators is that much of the area to be cleared is still unknown. Countries dealing with old ordnance also encounter this problem. In areas used for training, the boundaries were often not recorded. There were no written records of experimental training sites. Ordnance dumps and ordnance stores were often not known by many people. For instance, in the United Kingdom, only two to three men knew the location of these sites. Defensive positions were heavily mined and the majority of these were often hastily cleared. To search an old mine field to locate a few mines would be extremely expensive and time consuming. These mines and any enemy dropped bombs that turn up are dealt with on a case-by-case basis. Because of these scenarios, it is unlikely that old ordnance will be cleared in a time efficient manner. The missed landmines in mine fields remain, and the unexploded bombs still turn-up on the beaches.

It can be effectively argued that mines are used more prolifically in current wars than in previous wars. Perhaps, because of this factor and other variables, humanitarian clearance operations now deploy into war-torn areas almost immediately after the violence has ended. This practice is a new concept to modern warfare and an unusual concept falling under the umbrella of humanitarianism because it was previously a military responsibility. But, as statistics reveal, mine and UXO clearance is a responsibility that has mixed results for the deminer, the civilian, socio-economic development, agricultural land and animals.

Further complicating the problem of mine clearance today is the way warfare has changed over the last 100 years. Earlier wars were fought with recognizable defensive and offensive positions. Battle lines were easy to follow. Current wars and skirmishes are fought often with no recognizable battle lines in what can be described as guerilla war tactics of low technology but high intensity. As these conflicts progress, soldiers rotate, new soldiers lay new mines and locations of previous mine fields may be distantly remembered. Added to this problem is the evolution of mine warfare from defense into offense. Mines are not just placed as deterrents but to kill. Long rebel battles increased the use of government armies of placing mines around settlements, infrastructure, paths and roads. Mines are now placed around civilians—where people live, work, play and commute to town. Mines are no longer placed around recognizable "war zones."Often, the best sources of information about mines are not the rebel and government armies who may or may not keep records of their location but the victims, the doctors and hospitals who treat the mine victims and the civilians of the local mine-infested villages. ■

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